



FCC PART 15B, CLASS A
MEASUREMENT AND TEST REPORT

For

Wuhan Guide Sensmart Tech Co., Ltd

NO.6 Huanglong Hill South Road, Donghu High-Tech Development Zone,
Wuhan, Hubei, China

Tested Model: T120
Multiple Models: T120H, T120VH

Report Type: Amended Report	Product Type: Entry-level Portable Thermal Camera
Report Number:	RSZ200318817-00A1
Report Date:	2020-03-20
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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	RSZ191029810-00	Original Report	2019-12-02
1	RSZ200318817-00A1	Amended Report	2020-03-20

Note:

This is an amended report based on the report RSZ191029810-00, the details as below:

(1) Adding two model number: T120H, T120VH.

Based on above differences listed, it will not impact any test item, we only updated related EUT photos in the report, all of the data and other photos were copied from the original report.

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Entry-level Portable Thermal Camera
Tested Model	T120
Multiple Model	T120H, T120VH
Voltage Range	DC 3.6V from battery or DC 5V from adapter
Highest operating frequency	100 MHz
Date of Test	2019-11-14 to 2019-11-15
Sample serial number	191029810
Received date	2019-10-29
Sample/EUT Status	Good condition
Adapter information	Model: S008ACM0500200 Input: AC 100-240V, 50/60Hz, 300mA Output: DC 5V, 2000mA

Notes: This series products model: T120H, T120VH and T120 are identical schematics, model T120 was selected for fully testing, the detailed information can be referred to the declaration letter.

Objective

This test report is prepared on behalf of *Wuhan Guide Sensmart Tech Co., Ltd* in accordance with Part 2-Subpart J, Part 15B Subparts A and B of the Federal Communication Commissions rules.

The objective of the manufacturer is to determine the compliance of the EUT with FCC Part 15B.

Related Submittal(s)/Grant(s)

No related submittal(s).

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on CISPR 16-4-2:2011, the expanded combined standard uncertainty of test at Bay Area Compliance Laboratories Corp. (Shenzhen) is shown as below. And the uncertainty will be taken into consideration for the test data recorded in the report

Parameter		uncertainty
Conducted Emissions		±1.95dB
Emissions, radiated	Below 1GHz	±4.75dB
	Above 1GHz	±4.88dB

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Test Facility

The test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 342867, the FCC Designation No.: CN1221.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062B.

SYSTEM TEST CONFIGURATION

Justification

The system was configured for testing in normal condition.

EUT exercise software

No exercise software was used.

Equipment Modifications

No modification was made to the EUT tested.

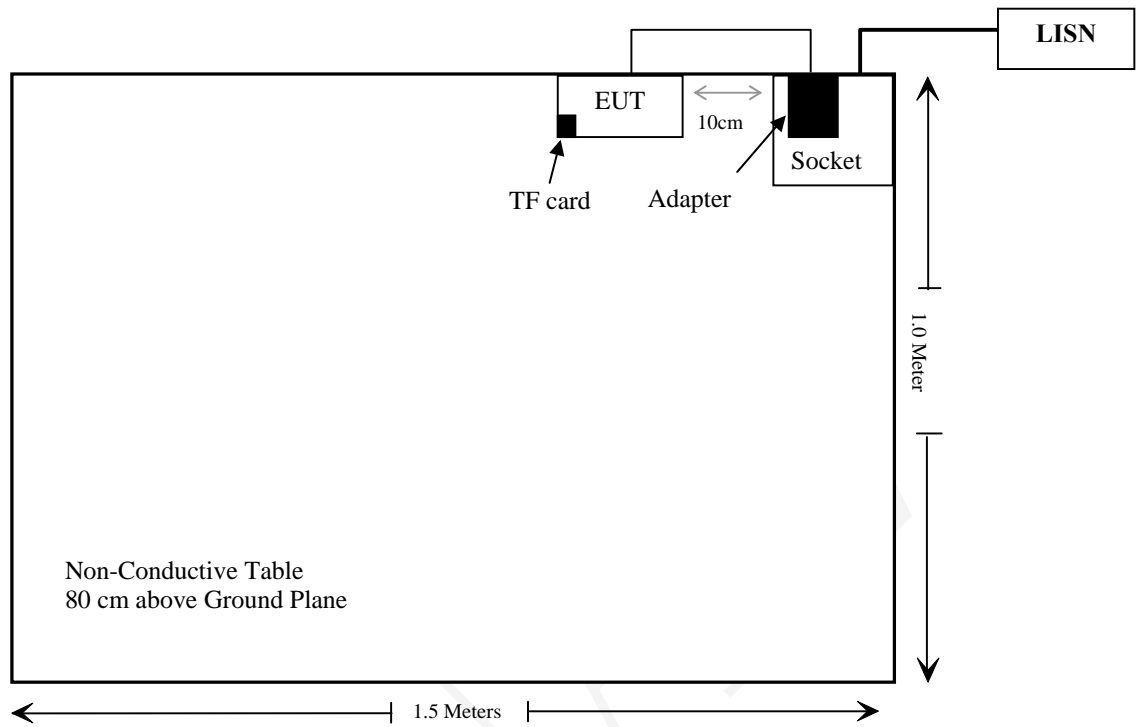
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
BULL	Socket	GN-415K	5503290068073
Sandisk	T-F card	N/A	N/A

External I/O Cable

Cable Description	Length (m)	From/Port	To
Unshielded un-detachable AC cable	1.0	LISN	Socket
Unshielded detachable DC cable	1.0	EUT	Adapter

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§15.107	AC Line Conducted Emissions	Compliance
§15.109	Radiated Emissions	Compliance

FINNAL

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
AC Line Conducted Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2019-07-09	2020-07-08
Rohde & Schwarz	LISN	ENV216	3560.6650.12-101613-Yb	2019-01-25	2020-01-25
Rohde & Schwarz	Transient Limiter	ESH3Z2	DE25985	2019-03-02	2020-03-01
Rohde & Schwarz	CE Test software	EMC 32	V8.53.0	NCR	NCR
Radiated Emission Test					
Sonoma Instrument	Amplifier	310N	186238	2019-11-12	2020-11-12
Rohde & Schwarz	EMI Test Receiver	ESR3	102455	2019-07-09	2020-07-08
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2017-12-22	2020-12-21
Rohde & Schwarz	Auto test Software	EMC32	V9.10	NCR	NCR

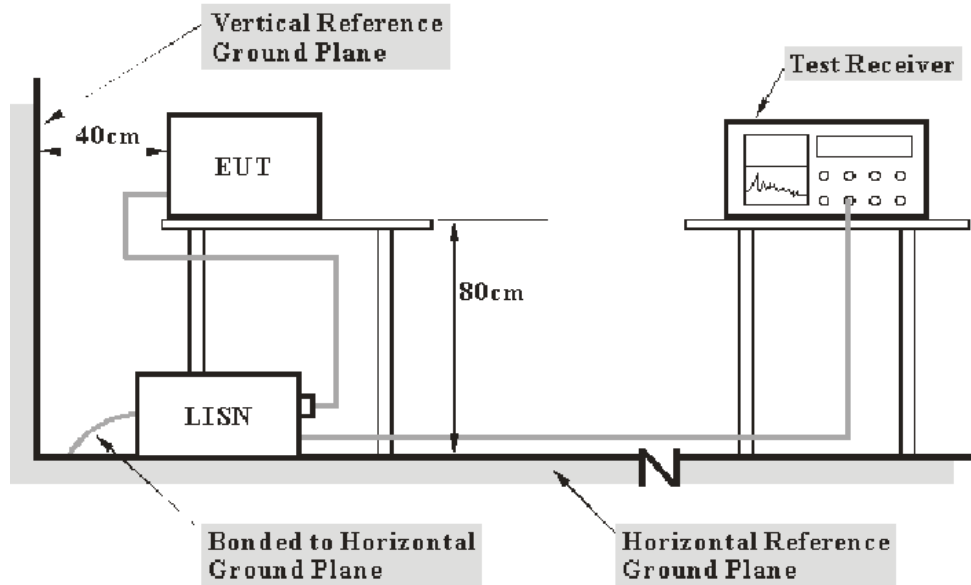
* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §15.107 – AC LINE CONDUCTED EMISSIONS

Applicable Standard

According to FCC§15.107

EUT Setup



- Note: 1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The measurement procedure of EUT setup is according with ANSI C63.4-2014. The related limit was specified in FCC Part 15.107 Class A.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

Corrected Factor & Margin Calculation

The Corrected factor is calculated by adding LISN/ISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

$$\text{Correction Factor} = \text{LISN/ISN VDF} + \text{Cable Loss} + \text{Transient Limiter Attenuation}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Results Summary

According to the EUT complied with the FCC Part 15.107,

Test Data

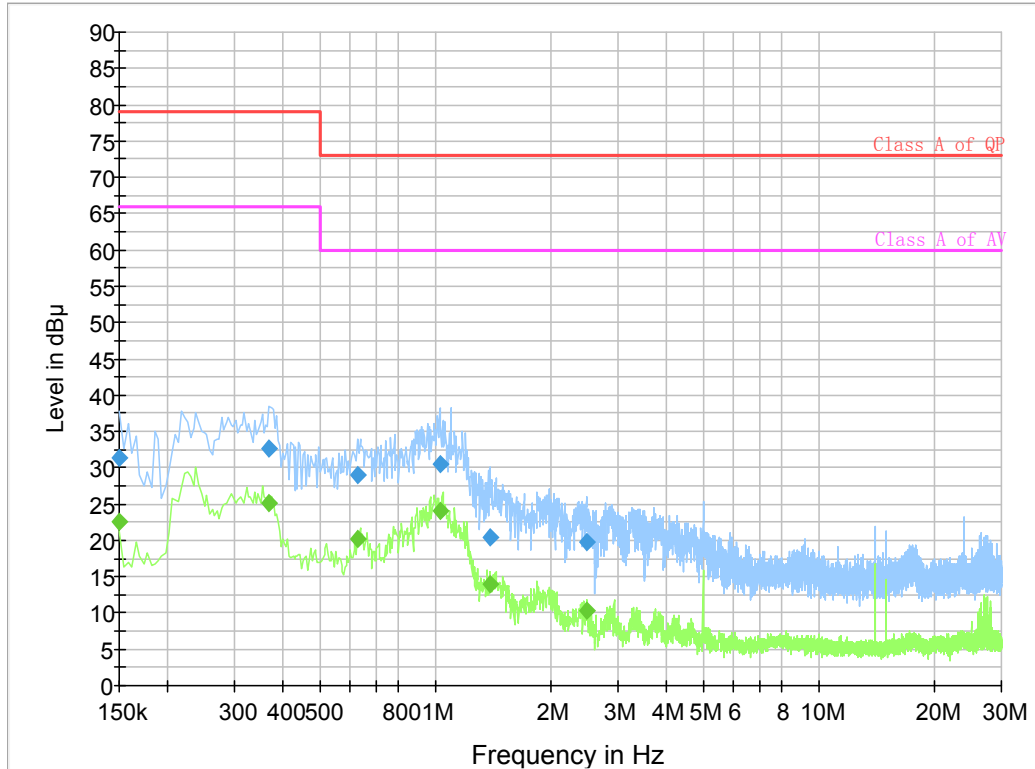
Environmental Conditions

Temperature:	25 °C
Relative Humidity:	50 %
ATM Pressure:	101.0 kPa

The testing was performed by Haiguo Li on 2019-11-15.

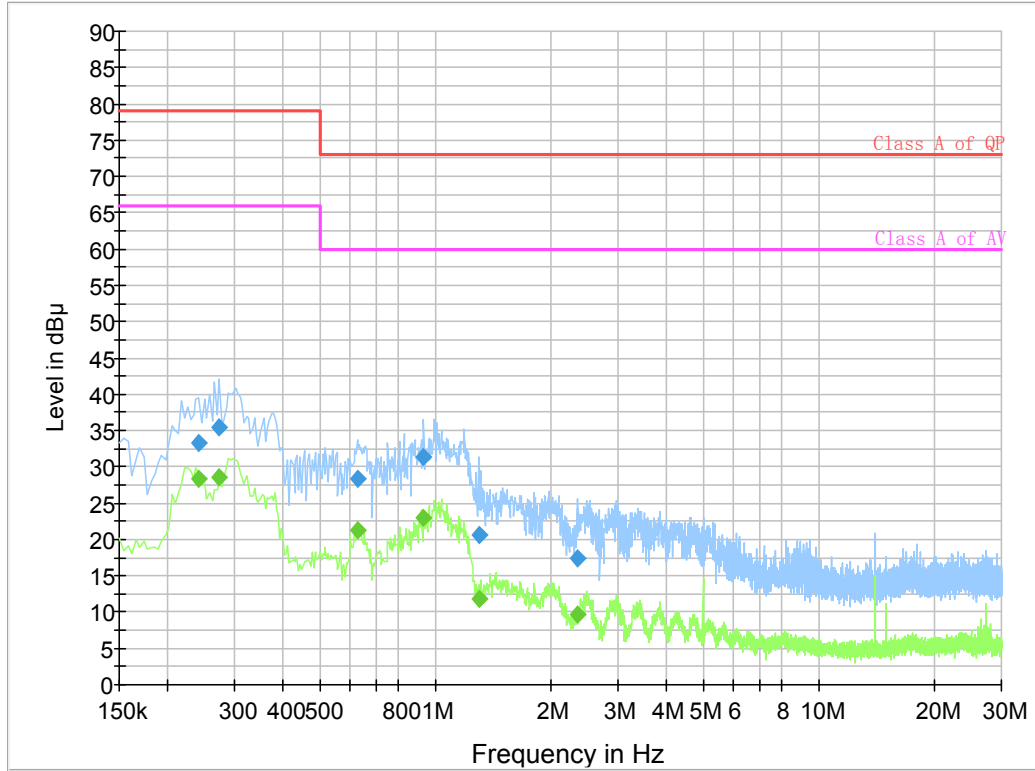
EUT Operation Mode: Charging & thermal imaging

AC 120V/60 Hz, Line



Frequency (MHz)	Corrected Amplitude (dB μ V)	Corrected Factor (dB)	Limit (dB μ V)	Margin (dB)	Remark (PK/QP/Ave.)
0.150000	31.5	19.8	79.0	47.5	QP
0.370000	32.7	19.9	79.0	46.3	QP
0.626000	28.9	19.8	73.0	44.1	QP
1.030000	30.5	19.9	73.0	42.5	QP
1.394000	20.4	19.8	73.0	52.6	QP
2.486000	19.8	19.8	73.0	53.2	QP
0.150000	22.6	19.8	66.0	43.4	Ave.
0.370000	25.1	19.9	66.0	40.9	Ave.
0.626000	20.3	19.8	60.0	39.7	Ave.
1.030000	24.1	19.9	60.0	35.9	Ave.
1.394000	14.0	19.8	60.0	46.0	Ave.
2.486000	10.3	19.8	60.0	49.7	Ave.

AC 120V/60 Hz, Neutral



Frequency (MHz)	Corrected Amplitude (dBμV)	Corrected Factor (dB)	Limit (dBμV)	Margin (dB)	Remark (PK/QP/Ave.)
0.242000	33.4	19.8	79.0	45.6	QP
0.274000	35.3	19.7	79.0	43.7	QP
0.626000	28.3	19.8	73.0	44.7	QP
0.934000	31.4	19.8	73.0	41.6	QP
1.298000	20.6	19.8	73.0	52.4	QP
2.354000	17.3	19.8	73.0	55.7	QP
0.242000	28.3	19.8	66.0	37.7	Ave.
0.274000	28.5	19.7	66.0	37.5	Ave.
0.626000	21.3	19.8	60.0	38.7	Ave.
0.934000	23.1	19.8	60.0	36.9	Ave.
1.298000	11.9	19.8	60.0	48.1	Ave.
2.354000	9.7	19.8	60.0	50.3	Ave.

Note:

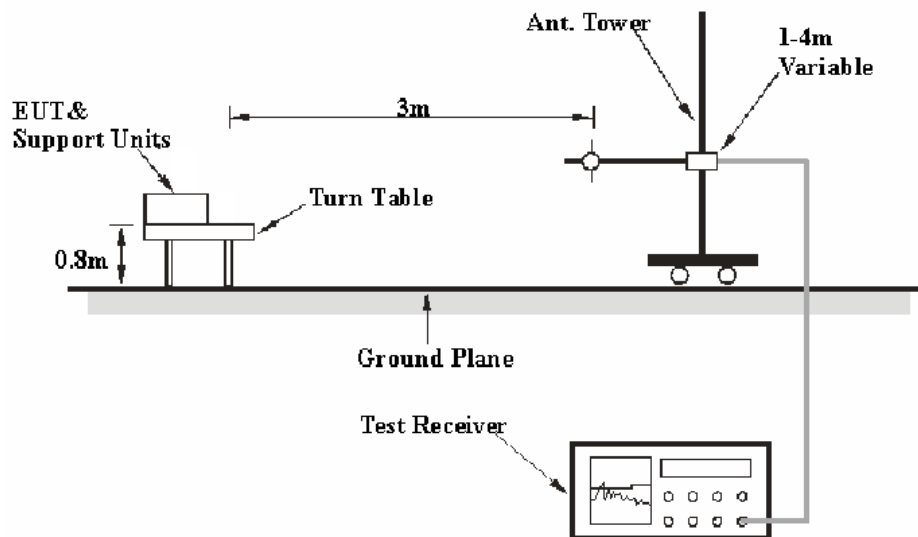
- 1) Corrected Amplitude = Reading + Correction Factor
- 2) Correction Factor = LISN VDF + Cable Loss + Transient Limiter Attenuation
- 3) Margin = Limit – Corrected Amplitude

FCC§15.109 - RADIATED EMISSIONS

Applicable Standard

FCC §15.109

EUT Setup



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2014. The related limit was specified in FCC Part 15B.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

According to FCC 15.33 requirements, the EUT system was measured from 30 MHz to 1 GHz.

During the radiated emission test, the EMI test receiver Setup was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All final data was recorded in the Quasi-peak detector mode from 30 MHz to 1 GHz.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Results Summary

According to the EUT complied with the FCC §15.109 Class A,

Test Data

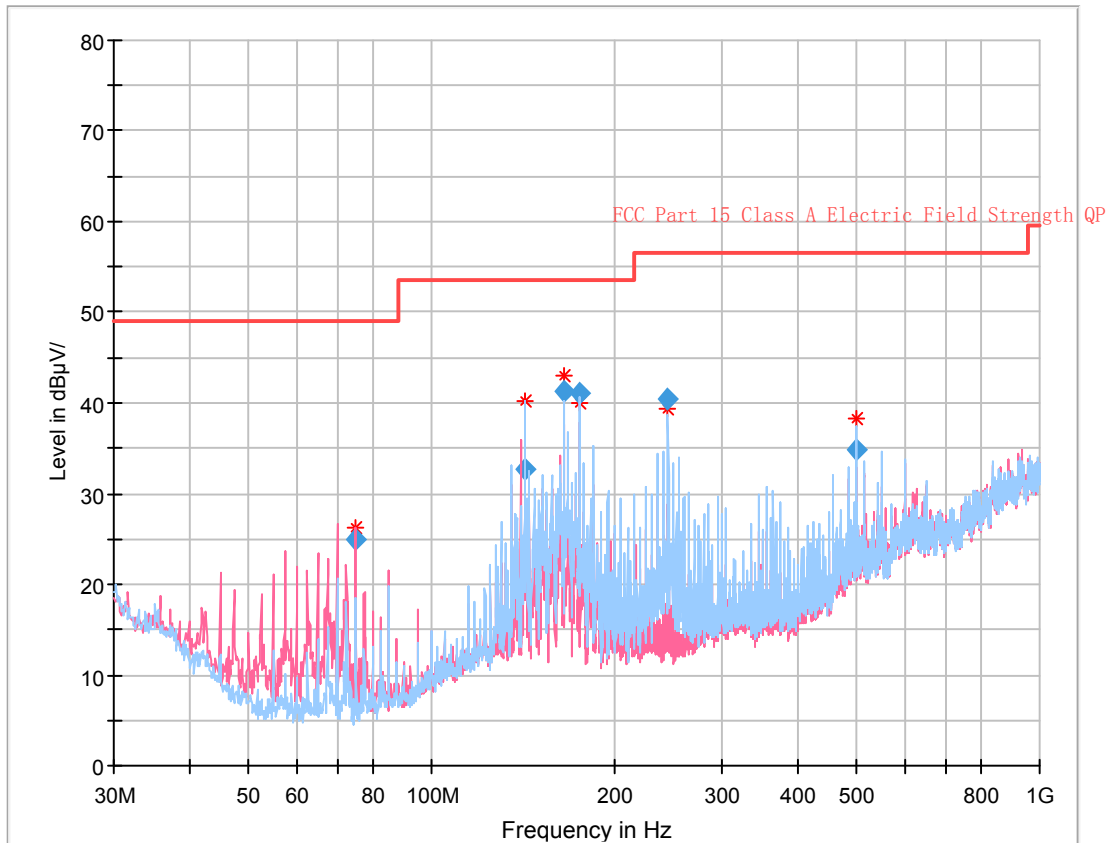
Environmental Conditions

Temperature:	25 °C
Relative Humidity:	20 %
ATM Pressure:	101.0 kPa

The testing was performed by Charlie Cha on 2019-11-14.

EUT Operation Mode: Charging & thermal imaging

30 MHz~1 GHz



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna height (cm)	Antenna Polarity	Turntable position (degree)	Correction Factor (dB/m)	Limit (dBµV/m)	Margin (dB)
75.011625	24.89	108.0	V	163.0	-20.3	49.00	24.11
142.530750	32.77	184.0	H	172.0	-14.2	53.50	20.73
165.007875	41.22	238.0	H	104.0	-14.7	53.50	12.28
175.006625	41.15	157.0	H	65.0	-15.1	53.50	12.35
244.999750	40.51	134.0	H	235.0	-14.1	56.50	15.99
499.966250	34.85	185.0	H	143.0	-5.2	56.50	21.65

Note:

- 1) Corrected Amplitude = Meter Reading + Correction Factor
- 2) Correction Factor = Antenna Factor + Cable Loss - Amplifier Gain
- 3) Margin = Limit - Corrected Amplitude

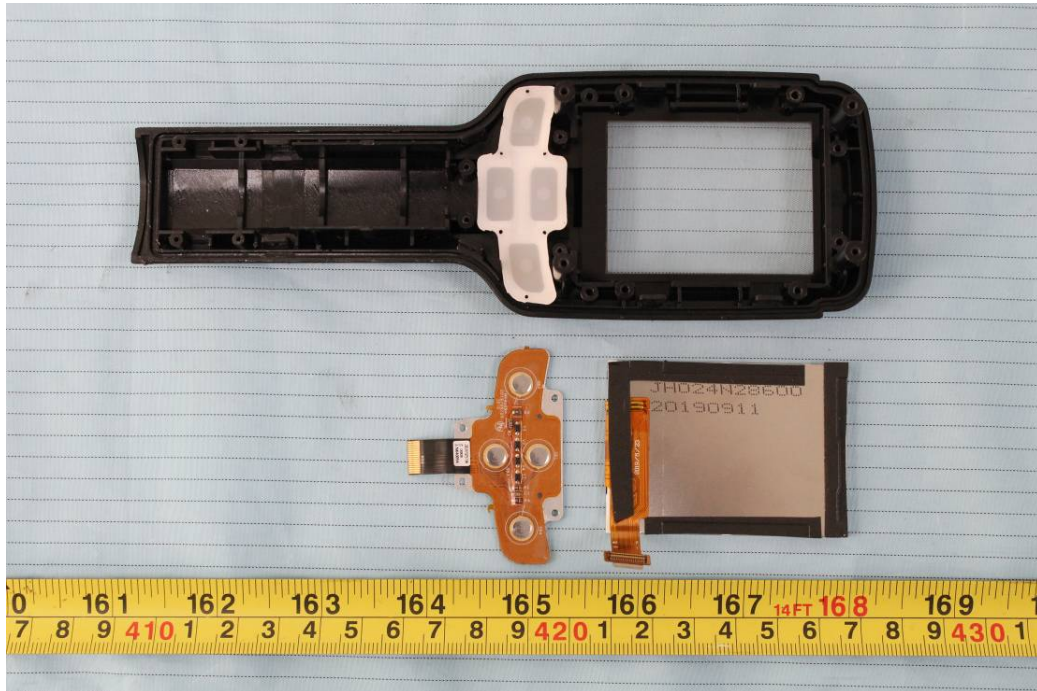
EXHIBIT A - EUT PHOTOGRAPHS

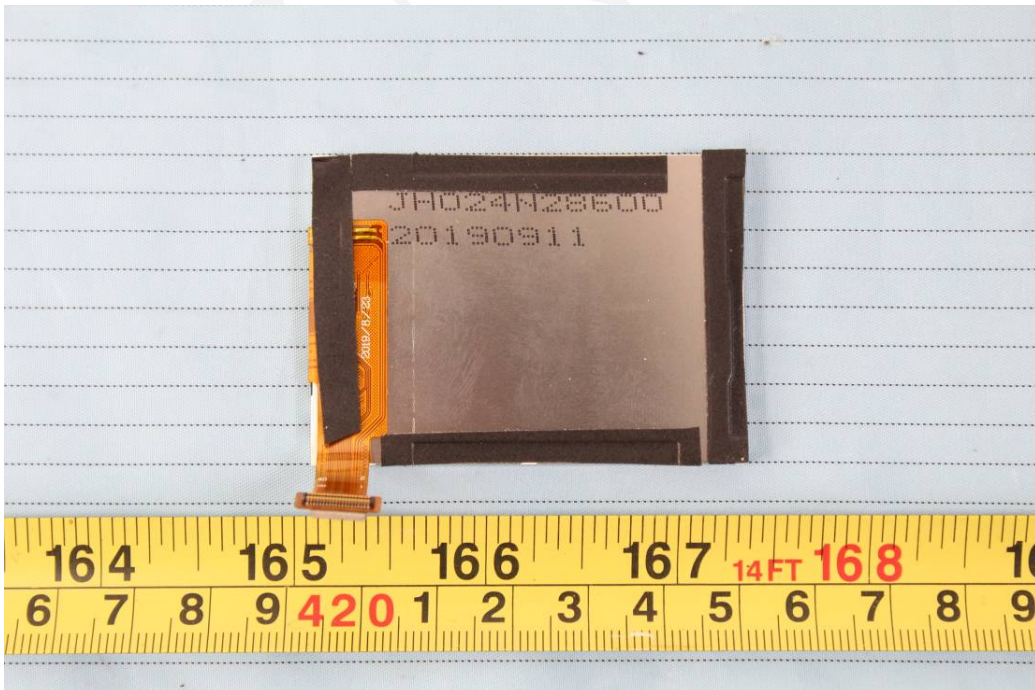


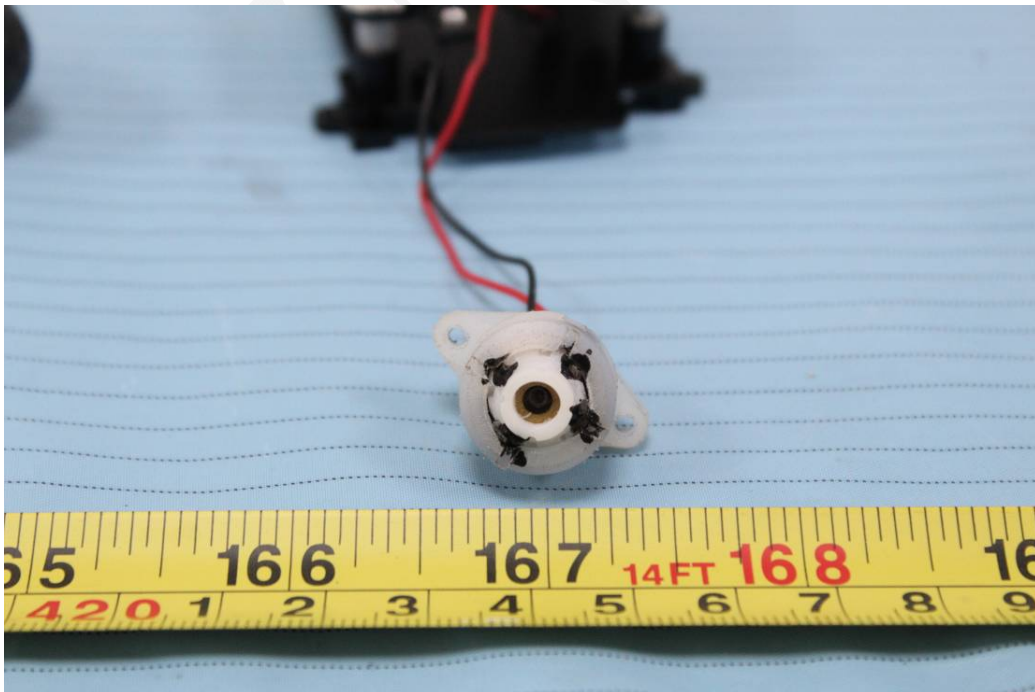
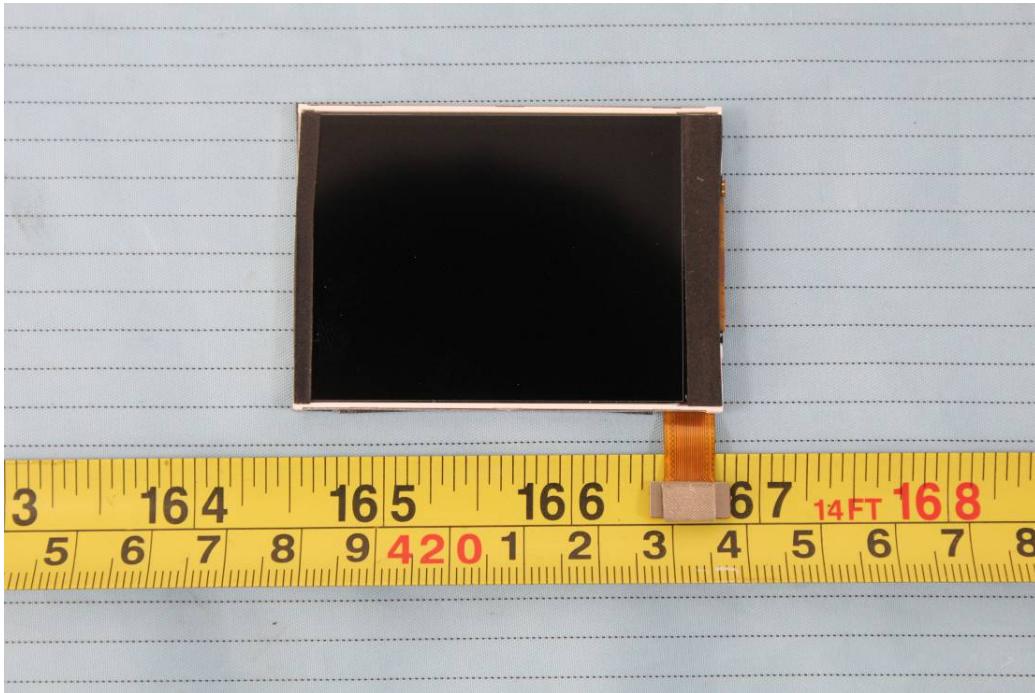




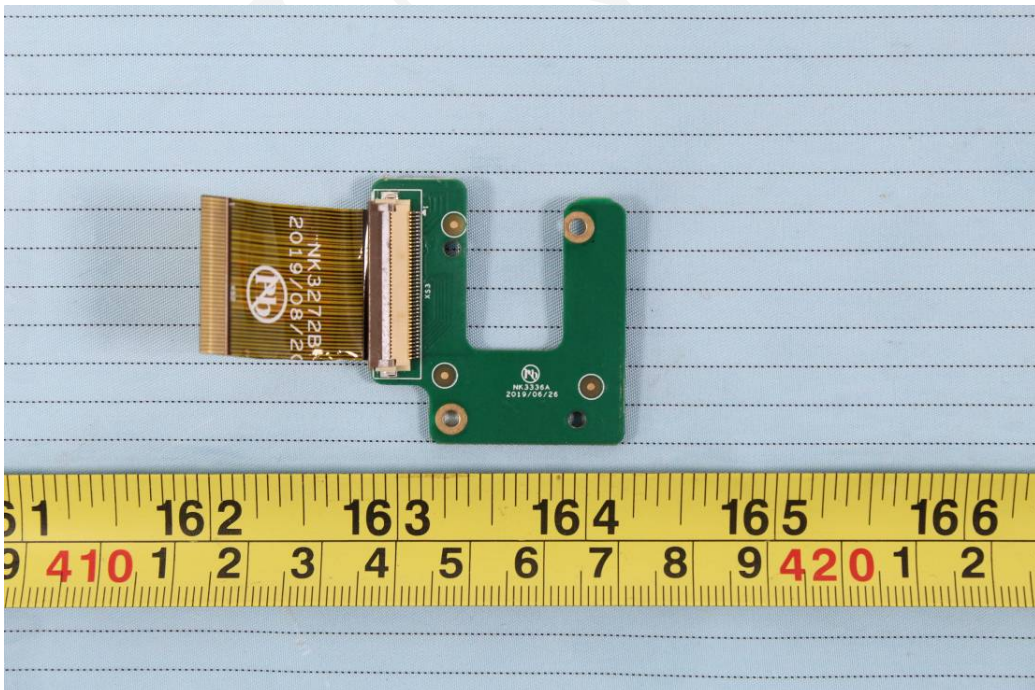


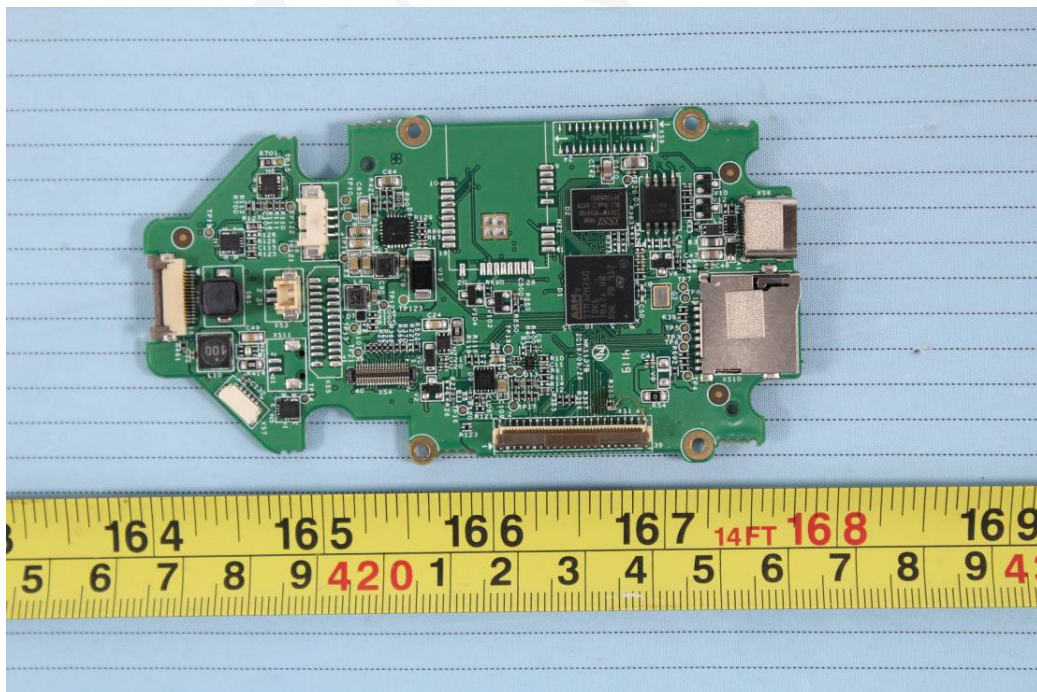
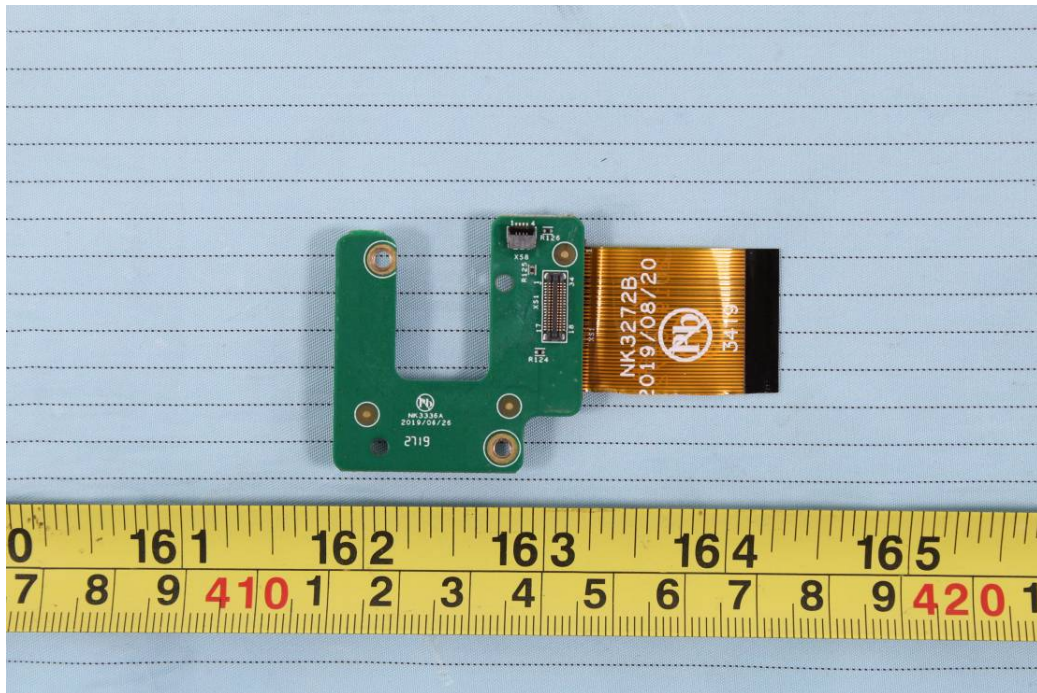












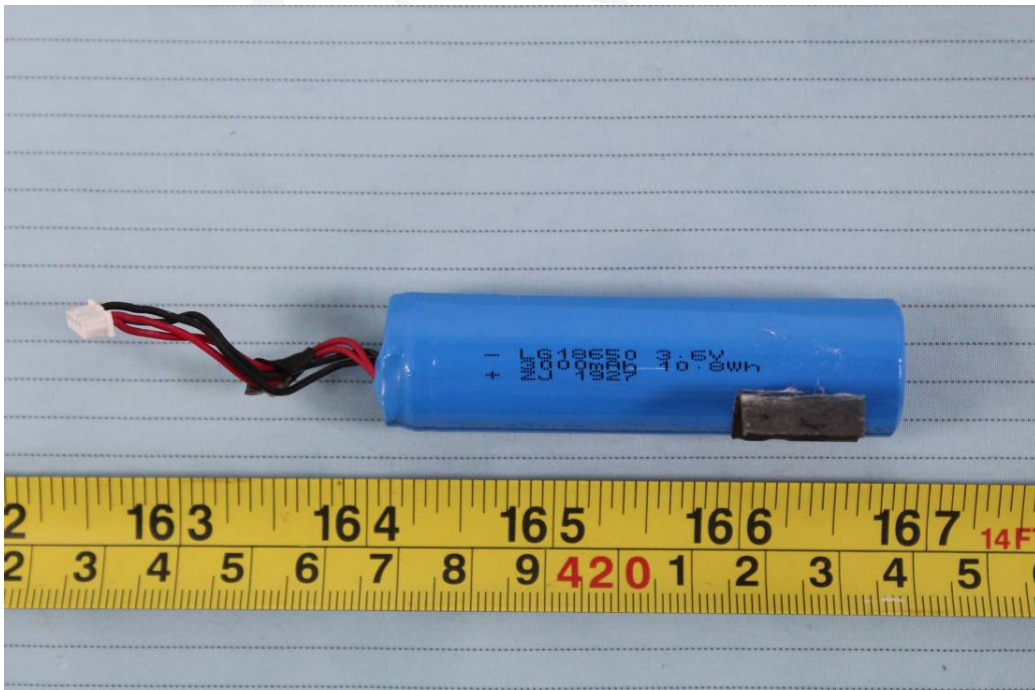
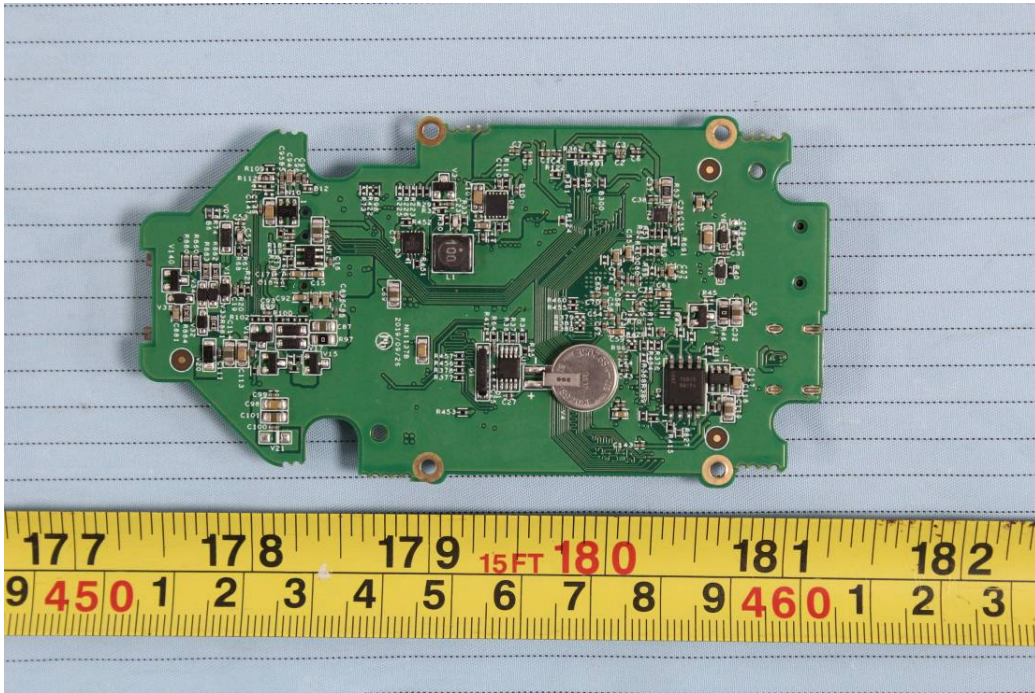
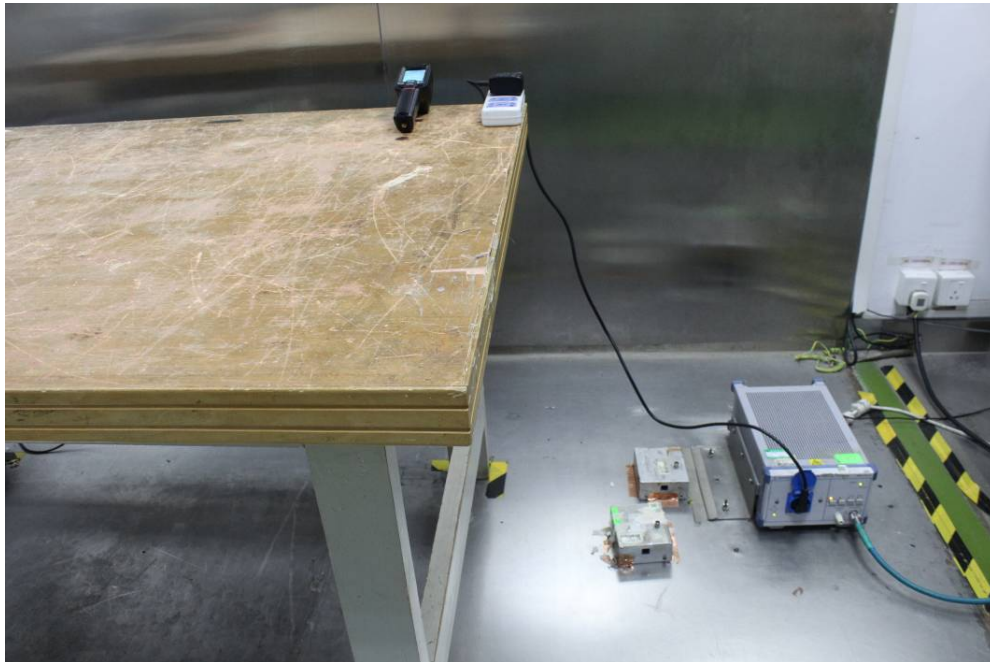




EXHIBIT B - TEST SETUP PHOTOGRAPHS

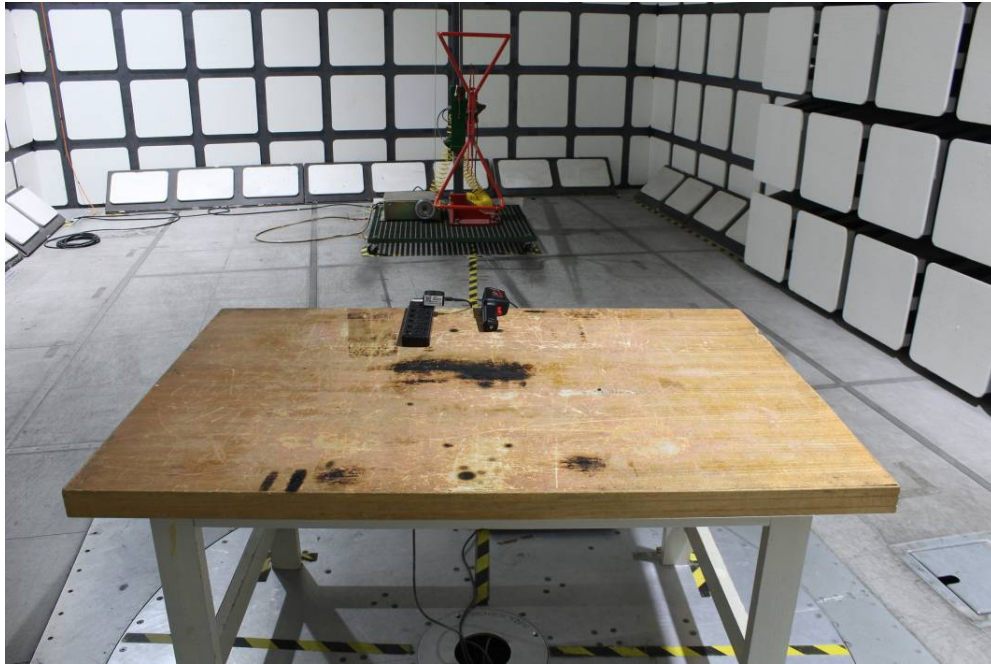
AC Line Conducted Emissions - Front View



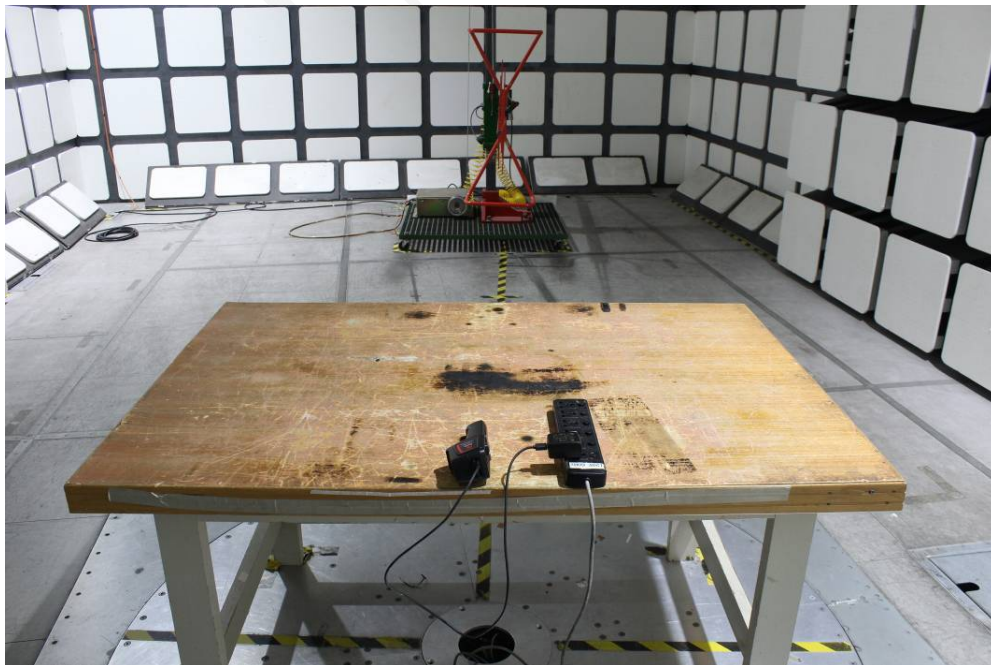
AC Line Conducted Emissions - Side View



Radiated Emissions - Front View



Radiated Emissions - Rear View



PRODUCT SIMILARITY DECLARATION LETTER

Wuhan Guide Sensmart Tech Co., Ltd
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 E-mail: baoy@guideir.com
 TEL: 027-81298935

Date: 2020-03-20

Declaration of Alteration


To Whom It May Concern,

We, Wuhan Guide Sensmart Tech Co., Ltd hereby declare that there are some differences between our Multiple Models and testing products. Details as below:

Products Description	Name	Entry-level Portable Thermal Camera
	Brand	Guide
	Manufacturer	Wuhan Guide Sensmart Tech Co., Ltd
Differences Description		
Testing Products	Multiple Models	Details
T120	T120H, T120VH	Different models

Notes: Testing products-the products tested by BACL
 Multiple Model- have the same or similar appearance, structure, PCB, Material and function to the testing products, and only are different for models.

Besides the differences in the table above, we declare the products are identical
 We guarantee all the information provided above is true, and notice that we'll bear all the consequences caused by any false information or concealing

Best Regards,
 Signature: 
 Print Name: Yong Bao
 Title: Manager

******* END OF REPORT *******